

A New Species of the Genus *Psen* from the Ogasawara Islands, Japan
(Hymenoptera, Sphecidae, Pemphredoninae)

Hirohiko Nagase

81 Nikaido, Kamakura 248-0002, Japan

Abstract A new species of sphecid wasp, *Psen boninensis*, is described from Chichijima, one of the Ogasawara Islands, Tokyo, Japan. This is the first record of the genus *Psen* from the Ogasawara Islands.

Key words : Sphecidae, *Psen boninensis*, new species, Ogasawara Islands.

Wasps of the genus *Psen* are generally slender, medium-sized sphecids which have long abdominal petiole. As far as known, all species hunt leaf-hoppers of Cicadellidae, Cercopidae etc. as prey for thier young and store them in the nests dug in the ground or in rotton tree stumps. The genus is distributed worldwide except Australia and South America, but is most species-rich in the Oriental Region.

Among sphecid wasps recorded from the Ogasawara Islands, so far no species belonging to the genus *Psen* has been included (Yamane, 1992). The author had an opportunity to study a specimen of *Psen* from Chichijima, one of the Ogasawara Islands, in the collection of National Science Museum, Tokyo and is describing it as a new species. This is the first record of the genus *Psen* from the Ogasawara Islands.

Morphological terms are mostly according to Bohart and Menke (1976).

***Psen boninensis* sp.nov.**

[Japanese name: Ogasawara yokobaibachi]

(Figs.1–3)

Description of holotype male: Body length ca. 8 mm, length of head plus thorax 3.0 mm, wing length 5.7 mm, width of head 2.0 mm, a rather slender species.

Structure. Head slightly wider than thorax. Face (Fig. 1) distinctly transverse, ratio of maximum width of outer eye margins against distance between lower margin of front ocellus and lower margin of clypeus 80 : 54, ratio of the former against distance between eyes at vertex, and minimum distance between inner eye margins (about the level of lower margin of antennal socket) 80 : 42 : 32.

Clypeus well convex, lower margin medially slightly produced with shallow but distinct emargination in the middle and blunt angles on both sides of emargination.

Distance between antennal socket and eye about 1/2 or less of diameter of socket, distance between antennal sockets somewhat larger than socket diameter; flagellar

segments slightly oval in cross section and about same width throughout, ratio of length against narrower width of flagellomere 1 20 : 6, ratio of length of flagellomere 1 to 11 26 : 21 : 21 : 21 : 20 : 20 : 20 : 20 : 20 : 20 : 26; tyli on flagellomere 4–10, that of flagellomere 4 faint and dot-like, 5 more or less linear along the length, 6 and onward progressively wider but outline not well defined, weakly shining making contrast to lusterless other part of flagellum. Middle to lower sides of frons weakly depressed, leaving a linear weakly raised area along inner margin of eye, a very fine furrow running on the raised area of frons; frontal carina distinct and continuous to interantennal carina, the lower end of the carina bluntly pointed but not high, seen from beneath both sides forming an obtuse angle, from near the lower end a pair of straight carina running to and merging into lower rim of antennal socket; post-ocellar distance slightly shorter than ocello-ocular distance and slightly longer than diameter of front ocellus; no transverse furrow behind posterior ocelli; occipital carina distinct throughout; gena seen from side $1/2$ or less of width of eye, polished; lower frons and clypeus except apical narrow margin with dense but shallow punctures which are obscured by dense silvery setae; from front ocellar area to lower frons with fairly dense but very shallow punctures, distance between punctures in this area about equal to or less than diameter of puncture; ocellar area distinctly swollen; area between ocelli and eye and whole vertex smooth and shining with very sparse small irregular punctures, distance between them 3–5 times diameter of puncture.

Mandible slender and normal, bidentate apically.

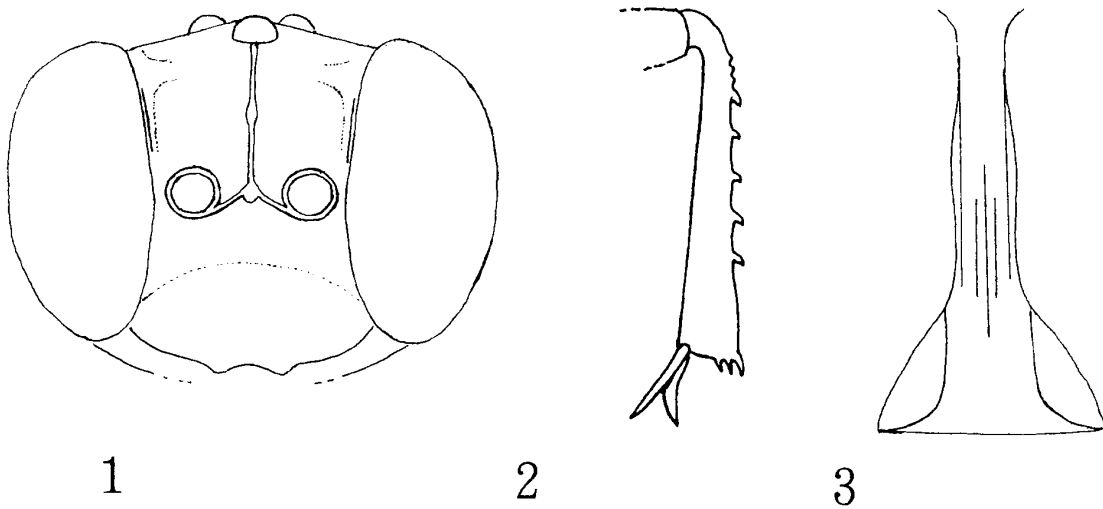
Pronotum transversely weakly carinate above, frontal slope slightly rounded with surface slightly roughened.

Scutum polished with strong medium-sized rather sparse irregular punctures, admedian line faint, notaulus strong with crenulate bottom, ending at about middle of scutum, parapsidal line narrow and short; lateral margin of scutum distinctly reflected with a deep furrow inside, the bottom of furrow crenulate; posterior margin of scutum with more than a dozen short parallel carinae which are at most $1/5$ of the length of scutum.

Omaulus distinct, ventrally turning backward, merging into sternaulus and reaching mid coxa, whole sternaulus except signum faint but well indicated as weak ridge; hypoepimeral area swollen, surface smooth and polished, scattered with very sparse microscopic punctures; meso- and metapleuron smooth and polished, mesopleuron with sparse very shallow hair-bearing punctures, metapleuron without puncture.

Scutellum convex, polished with sparse but distinct punctures which are slightly smaller than those on scutum; metanotum characteristic with a transverse blunt but distinct ridge at about $1/3$ of metanotal length from frontal margin, behind the ridge a flat and weakly punctured surface sloping sharply down toward propodeum.

Propodeal enclosure margined by a strong carina, with about 10 strong longitudinal carinae inside; posterior face of propodeum medially with large irregularly



Figs. 1–3. *Psen boninensis* sp. nov., male, holotype. — 1, Head, frontal view; 2, hind tibia; 3, abdominal sternite 1, ventral view.

round enclosure margined by a strong carina with distinct median groove; outside of enclosure with strong carinae forming very coarse reticulation; area between carinae polished.

Forewing with 1st recurrent vein received by 2nd submarginal cell near its base and 2nd recurrent vein by 3rd submarginal cell very near its base; forewing nervulus antefurcal by 1/2 of its length, hindwing nervellus postfurcal by 2/3 of its length.

No special modification in fore and mid legs; hind tibia with about 5 short spines on outer margin which are pointed but not very sharp. (Fig. 2)

Abdominal petiole about as long as hind femur which is slightly shorter than hind tibia; petiole in the anterior part somewhat trapezoidal in cross section with four carinae around for most of petiolar length, dorsal surface evenly transversely rounded, glabrous and slightly wider than ventral surface, seen from above middle part of petiole slightly swollen laterally; ventral surface of petiole (Fig. 3) with central carina in mid-posterior part accompanied by a pair of shorter side carinae; abdominal tergite 1 polished with very sparse fine hair-bearing punctures, punctures stronger and surface showing more tessellation toward the last tergite, especially the last tergite distinctly punctate and tessellate with an indication of narrow longitudinal impunctate space apically in the middle; sternite 2 with a pair of low but distinct longitudinally oval large swellings medio-apically, area between them shallowly concave; sternite 3 and 4 apically with a few fimbriae which are rather short, about as long as antennal broader width.

Pilosity: On the face, antennal area and below covered by dense glistening silver-white appressed setae, similar setae present on lower half of gena but much sparser; above antennal base to vertex and further to occipital carina hairs much thinner sparser and whitish, although behind vertex hairs somewhat denser than vertex and

longer than those in frons; pronotum behind transverse ridge with many long erect silver-white setae; scutum and scutellum with sparse brownish erect hairs; metanotum, mesopleuron and propodeum with white erect hairs which are much longer than those on middle of scutum; abdominal petiole with very sparse long hairs ventrally; abdominal tergites with sparse suberect pale brownish short hairs which are longer toward the last segment; abdominal sternites with sparse whitish hairs of mixed length, longer hairs tend to be suberect and those on sternites 3 and 4 about equal in length to apical fimbriae of those sternites; legs with much suberect hairs although not very dense except on hind tibia, hind tibia with much short hairs on inner surface which are especially dense basally and apically, hairs on outer surface of hind tibia much longer but sparser.

Color: Head and thorax black; mandible basal 1/4 black, next about 1/3 whitish yellow brown, apical part reddish brown, palpi whitish yellow brown; flagellum dark chestnut-brown; wings slightly brownish, veins dark brown; trochanter, femur and tibia of all legs chestnut-brown, tarsi paler; abdomen black, sternites 1, 2 and apical margin of tergite 2 very slightly brownish.

Female: Unknown.

Holotype. Male, 20-VI-1976, Kitafukurozawa, Chichijima Is., Ogasawara, Tokyo, Japan, S. Shinonaga leg. Holotype is deposited in National Science Museum in Tokyo.

Remarks: This species can be distinguished from other known species of *Psen* from the Far East and the Oriental Region by combination of the following characteristics: very sparsely punctured vertex, short parallel carinae in posterior margin of scutum, distinctly ridged metanotum, multi-carinate ventral surface of abdominal petiole and weakly bi-convex sternite 2. This species does not key out in Tsuneki's key to Japanese species (Tsuneki, 1978), and is different from subsequently described species from Japan and adjacent areas. In van Lith's key (van Lith, 1968) it goes to *Psen betremi* van Lith described from Java with some discrepancies, but, judging from the description (van Lith, 1959), it is quite different from the latter. For instance, the latter species (male) does not have spine on hind tibia and the last tergite is rufous.

Acknowledgement

The author is greatly indebted to Dr. A. Shinohara of National Science Museum, Tokyo for his providing bibliographical help and critically reading the draft of this paper.

References

Bohart, R. M. & A. S. Menke, 1976. Sphecoid Wasps of the World. Univ. of Calif. Press, Berkeley, Calif.

1-695.

- Tsuneki, K., 1978. Key to Japanese species of the genus *Psen*. *Hymenopterist's Communication*, **7**: 9-12. Mishima. (In Japanese.)
- van Lith, J. P., 1959. Contribution to the knowledge of the Indo-Australian *Pseninae*. *Zool. Verhandl.*, **39**: 1-69.
- van Lith, J. P., 1968. Contribution to the knowledge of Indo-Australian, South Pacific and East Asiatic *Psenini*. Genus *Psen*. *Tijds. Ent.*, **111**: 89-135.
- Yamane, Sk., 1992. Hymenoptera Aculeata of the Ogasawara Islands. *Ann. Rep. of Res. on Ogas. Isls.*, **15**: 27-39. Tokyo Metrop. Univ., Tokyo. (In Japanese.)